

**Notice of Allowability**

Application No.

10/020,983

Applicant(s)

KAJIURA, HIROAKI

Examiner

Pedro J. Cuevas

Art Unit

2834

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to election filed on August 1, 2003.
2. ☒ The allowed claim(s) is/are 1-9 and 11-15.
3. ☒ The drawings filed on 06 February 2002 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☒ CORRECTED DRAWINGS must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No. \_\_\_\_\_.
- (b) ☒ including changes required by the proposed drawing correction filed 04 April 2002, which has been approved by the Examiner
- (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- 1 ☒ Notice of References Cited (PTO-892)
- 2 ☐ Notice of Informal Patent Application (PTO-152)
- 3 ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 4 ☐ Interview Summary (PTO-413), Paper No. \_\_\_\_\_
- 5 ☐ Information Disclosure Statements (PTO-1449), Paper No. \_\_\_\_\_
- 6 ☒ Examiner's Amendment/Comment
- 7 ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
- 8 ☒ Examiner's Statement of Reasons for Allowance
- 9 ☐ Other

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Holly N. Sy on October 17, 2003.

The application has been amended as follows: Please cancel non-elected claims 10, Group II, and claims 16-19, Group III.

#### *Allowable Subject Matter*

2. Claims 1-9 and 11-16 are allowed.

3. The following is an examiner's statement of reasons for allowance.

The prior art of record, taken alone or in combination, fails to teach the construction of a motor-generator apparatus for a vehicle as described on:

independent claim 1, wherein while said engine starting is being performed, said AC-to-DC and DC-to-AC power converter supplies to said armature winding said armature current as a current having a component which forms a magnetic flux in the same direction as that of said field winding magnetic flux;

independent claim 5, wherein designating a maximum allowable temperature for said rotor as  $T_{max}$ , a maximum temperature that will be attained by the rotor during electric power generation operation as  $T_{gmax}$ , and a thermal capacity of the rotor as  $Q$ , a time interval for which current is passed through said

field current during an engine starting operation as  $T$ , the resistance of said field winding as  $r$ , and the field current that is supplied generation of electric power as  $i$ , said control circuit is configured to limit said field current during generation of electric power by said synchronous machine to a value such that  $(T_{gmax} + (i^2 \times r \times t) / Q)$  is lower than the temperature value  $T_{max}$ ;

independent claim 9, wherein said control circuit functions during an engine starting operation effected by said motor-generator apparatus to control said field current and said armature current such as to produce a magnetic saturation condition of a magnetic circuit which passes through said rotor core, and to control the value of a field magnetic force  $F_f$  to a higher value than an armature magnetic force  $F_a$ , where said field magnetic force  $F_f$  is determined as the product of said field current by a number of turns of said field winding and said armature magnetic force  $F_a$  is determined as the product of said armature current by a number of turns of said armature winding;

independent claim 11, wherein said control circuit is configured such that a predetermined initial period of an engine starting interval, said control circuit supplies said field current to said field winding with a large value of duty ratio, and of duty ratio until completion of said engine starting interval; and

independent claim 13, wherein said rotor-side iron core portion is configured to have a smaller value of magnetic reluctance, in a direction that is at right angles to a direction of said magnetic flux of said current-induced field magnets, than a value of magnetic reluctance in said direction of said flux of the current-induced field magnets.

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Dependent claims 2-4, 6-8, 12, and 14-16 are considered allowable by their respective dependence on allowed independent claims 1, 5, 9, 11, and 13.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

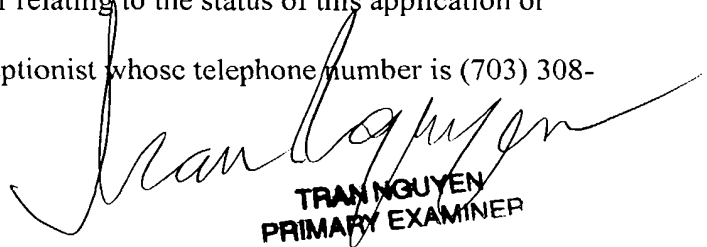
***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sec PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pedro J. Cuevas whose telephone number is (703) 308-4904. The examiner can normally be reached on M-F from 8:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor R. Ramirez can be reached on (703) 308-1371. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

  
TRAN NGUYEN  
PRIMARY EXAMINER

Pedro J. Cuevas  
October 20, 2003